

## Knowledge, Attitude, Practice In Research Among Postgraduate Students In Dental Colleges Of North India

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### ABSTRACT

**Background:** Research is required for up gradation of different aspects of Dental Sciences that include clinical skills, material sciences, technological advancements and newer patient treatment protocols. The present study aimed to analyze the knowledge, attitude and practice in research among postgraduate students in dental colleges of North India. **Materials and methods:** This was questionnaire-based prospective and cross-sectional survey study conducted on 2000 postgraduate students of all subjects of Dentistry in a Dental college and hospital. Ethical approval was obtained from Institutional Ethical Committee prior to distribution of pre-validated study questionnaire. A Google form was designed after thorough reviewing by four independent subject experts involved in postgraduate Dental teaching and training. A final questionnaire was prepared after reaching upon common consensus. A pilot testing was performed questionnaire on smaller sized sample. The Google form was distributed among the study participants by WhatsApp and electronic mails. The study questionnaire was formulated in English language and comprised of two parts: a) Part A (Knowledge) and b) Part B (Attitude and practice). Part A questions were associated with subjects familiarity with research in dentistry and how the research can be incorporated in dental practice while Part B contained questions concerning one's intentions regarding learning of research process and respondents' attitude with respect to incorporating research as essential part of postgraduate training program. **Statistical analysis:** Collected data was analyzed by use of software, Statistical Package for the Social Sciences, version 22.0 (SPSS v.22.0) for Windows (IBM Corp., Armonk, USA). Descriptive statistical analysis was used for defining characteristics of studied variables in form of numbers and percentages. 'One Way Anova - F test' was employed for establishing an association between variables, Statistical significance was considered if  $p < 0.05$ . **Results:** Age range of studied post-graduates was between 27-35 years and 66% respondents were females. 60% postgraduate students belonged to private Dental colleges while 40% belonged to public sector. 79.6 % of post-graduate students responded positively regarding research as an important component of postgraduate curriculum. 99% of students were aware of ethical committees at institutes. 98% students had good level of knowledge regarding different ethical guidelines that have been laid down by national and international agencies. 50% postgraduate students were of the belief that Institutional Research Ethics Committees delays research mainly because of revisions and/or rejections. 89 % post-graduate students were positive regarding research training. 100% postgraduates knew that written informed consent is mandatory before starting any research-based study. **Conclusion:** In the present study most of the students had good knowledge regarding research and followed the ethical guidelines related to research.

**Keywords:** research, postgraduate, students, dental, knowledge, attitude, practice.

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## INTRODUCTION

Research may be defined as “detailed study of any topic or subject in order to search for newer information or for better understanding.” Research in dental sciences has shown a rapid improvement in oral as well as overall health.[1] Research in health involves human subjects hence, basic ethics-based principles are required for protecting human rights, dignity as well as welfare.[2]

“Ethics” can be defined as “norms required for professional conduct” that distinguishes between reasonable and/or unreasonable behaviour. However, ethical principles are instilled starting from childhood and are continuously influenced by variety of experiences in one’s life that can explain subjectiveness involving interpretation of these norms. [3]

Research is an integral part of postgraduate teaching and training program. It mainly involves analyzing clinical research by introducing newer tools or by identifying research gaps in existing scientific evidence in any field of interest. However, it is done mainly to inculcate research orientation in students especially at post-graduate level. Most of the times, students engage in dissertation work only for fulfilling requirements towards getting professional degree or for publication purpose. There are few postgraduate students who involve themselves in short term research projects and have an inclination towards research based activities.

Since postgraduate study curriculum in Dental Sciences involves researching treatment protocols and materials sciences, it is imperative to explore opinions regarding engagement in research work from the students. Hence, this study was designed with an aim to analyze knowledge, attitude and practice in research among postgraduate students in dental colleges of North India.

## MATERIALS AND METHODS

### Study design and settings

This was a questionnaire-based prospective and cross-sectional study conducted on postgraduate students of different fields of Dentistry of a dental teaching hospital. Ethical approval was obtained from Institutional Ethical Committee (IEC/NM34-24) before dissemination of the pre-validated study proforma/questionnaire to selected students.

### Sample size calculation

The size of study sample was determined by using formula

$$N = z^2pq/L^2$$

Type I error rate 0.05

Power of study = 80%.

The determined sample size was 1997 which was rounded off to a total size of 2000 study respondents. Size of study sample was increased to account for potential non-responses due to ineligible and incomplete participant response.

### Data collection tool and techniques

An online electronic questionnaire survey form (Google form) was designed. It consisted of questionnaire items which were formulated after review by four independent experts who were involved in postgraduate training program in Dentistry. A final questionnaire was prepared after reaching upon common consensus. A pilot testing was performed questionnaire on smaller sized sample. The Google form was distributed among the study participants by means of WhatsApp and electronic mails. Data was collected from all the participants between October 2025 to December 2025 with response rate at 77.9%.

The study questionnaire was developed in English language. It comprised of two parts: a) Part A (Knowledge) and b) Part B (Attitude and practice). Part A questions were associated with subjects familiarity with research in dentistry and how the research can be incorporated in dental practice while Part B contained questions concerning one’s intentions regarding learning of research process and respondents’ attitude with respect to incorporating research as essential part of postgraduate training program.

**Inclusion criteria:** These were as follows a) Post-graduate (PG) students from all Dental specialties and b) Those who provided their consent for participating in the study. **Exclusion criteria:** These were a) undergraduate BDS students and b) those who did not provide voluntary and written informed consent for participating in the study.

**Statistical analysis:** The collected data was analyzed by use of software, Statistical Package for the Social Sciences, version 22.0 (SPSS v.22.0) for Windows (IBM Corp., Armonk, USA). Descriptive statistical analysis was used for defining characteristics of studied variables in form of numbers and percentages. ‘One Way Anova - F test’ was employed for establishing an association between variables, Statistical significance was considered if  $p < 0.05$ .

## RESULTS

a) Demographic characteristics: The age range of studied post-graduate students was between 27 to 35 years. Most respondent’s were females (66%). On analyzing the distribution of students, 60% were from private Dental colleges whereas (40%) belonged to the government sector.

b) Assessment of knowledge and awareness: 79.6 % of post-graduate students responded positively regarding research as an important component of postgraduate curriculum. 99% of students were aware of ethical committees at institutes. However, 98% students had good level of knowledge regarding different ethical guidelines that have been laid down by national and international agencies (Table 1).

c) Attitude and practice: 50% postgraduates believed that Institutional Research Ethics Committees delays process of research largely due to revisions and/or rejections. 89 % post-graduate students were positive regarding getting research training. All postgraduates were of strong opinion that written informed consent must be obtained before commencing any research study (Table 2). The Pearson’s correlation between knowledge, attitude, and practice among study participants was found to be +0.95, +0.81 and +0.76 respectively (Table 3)

Table 1: Showing knowledge and awareness of postgraduate students regarding research

| S. No. | Knowledge related questions   | Percentages |
|--------|---|-------------|
| 1      | Research is an important component of postgraduate studies?   | 79.6%       |
| 2      | An ethical committee in an institute or hospital is required for regulating research                            | 99%         |
| 3      | Are you aware of the guidelines laid down by national and/or international bodies for conducting research work? | 98%         |

Table 2: Showing attitude and practice of postgraduate students in relation to research during study duration

| S. No. | Knowledge related questions  | Percentages |
|--------|--|-------------|
| 1      | Proceedings of Institutional Ethical and Research Committee prolongs the duration of research? | 50%         |
| 2      | Is training in research important for pursuing postgraduation in Dentistry?                    | 89%         |
| 3      | Obtaining written informed consent before commencing research study is important               | 100%        |

Table 3: Correlation analysis of knowledge, attitude, and practice among study participants using Pearson’s correlation

| Relationship between variables | Correlation coefficient | P values |
|--------------------------------|-------------------------|----------|
| Knowledge and attitude         | +0.95                   | <0.0001  |
| Knowledge and Practice         | +0.81                   | <0.0001  |

|                       |       |         |
|-----------------------|-------|---------|
| Attitude and Practice | +0.76 | <0.0001 |
|-----------------------|-------|---------|

## DISCUSSION

Research is an important aspect of post-graduate teaching curriculum. However, it is faced with many confounding factors such as achieving the appropriate size of sample, patients' refusing to turn up at follow-ups, clinical burden undermining time dedicated towards research activities, attrition rates and lack of appropriate training in research.

Unnecessary delays in research might be attributed to incomplete understanding of ethical research and guidelines mandated by the committee. Hence, appropriate research training must be provided to students before selection of dissertation topic. In the present study, extremely significant differences ( $P < 0.0001$ ) between knowledge, attitude and practice of research amongst the postgraduate students of Dentistry. Therefore, it is indicative of good level of knowledge and attitude regarding research in studied postgraduate students. However, the practice of research during study period is largely due to dissertation and most students felt the requirement of getting training for research process, statistical analysis and analyzing the result outcome. In similar cross-sectional and descriptive study conducted by Wadhwa et al (2015), moderate level of knowledge among postgraduates was found. Highly positive attitude was found with significant Pearson's correlation ( $P = 0.83$ ). [4]

Academically oriented didactic lectures along side workshops on research process, methodology and ethical guidelines must be conducted to increase the extent of knowledge and inculcate research practices among the postgraduate students of Dental Sciences. [5]

Mallela et al (2015) in their study reported 76% response rate. More than 90% of studied Dental faculty had awareness regarding ethical committee. However, poor level of knowledge (8% to 35%) about international ethical guidelines level was found. 20% Dental faculty believed that research ethical committees cause delay in research process which is lower than the percentage of postgraduate study participants (50%) in present study. 78% of faculty were desirous of training program involving ethics in research. Similarly, 98% postgraduate students in present study wanted training in research process. Further, Mallela et al (2015) reported fair level of knowledge regarding informed consent among faculty researchers. In our study, all postgraduate students were well informed about obtaining written informed consent from study subjects. [6] Dental workshops and educational lectures must be conducted for the upliftment of knowledge regarding research. This may also include hands-on learning opportunities, and direct interaction

with experts, that further help in staying updated with the latest advancements in the field. [7,8,9,10]

Hence, it can be surmised from present study though there is good level of knowledge and awareness regarding research in studied postgraduates of Dentistry. However, there was less inclination of incorporating research in day to day practice in these students. Hence, training programs to encourage and promote research activities in clinical practice must be conducted as part of teaching curriculum in Dentistry. [11,12,13] Cognizance of biostatistics and standards of research configuration is imperative for writing assessment and evidence-based practice in dentistry and also for scientists wishing to have their publications acknowledged by international journals. [14,15]

## CONCLUSION

Research is an integral part of training and teaching curricula in Dental Sciences. However, as there is no tailored program to engage students in research activities existing at present, the research process is only being followed as a means to complete dissertations which are partial fulfilling criteria in obtaining master's degree.

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